Supporting Documentation for Spotting Distance, IFT-spot (based on the SPOT module in BehavePlus)

Name of Software Tool: IFT-spot

Current Version Description/Date: IFT-spot version 01-31-12

Software Code and History: The mathematical model code for IFT-spot is from the Fire Behavior Software Developer Kit (FBSDK) and the BehavePlus5 xfblib.cpp and xfblib.h. IFT-spot (01-31-12) implements all of the model functionality found in the BehavePlus-SPOT module. Details comparing the functionality of BehavePlus5 and equivalent tools in IFTDSS can be found in Drury et al. (2012, BehavePlus Functionality available in IFTDSS Version 1.0). Rigorous testing has been performed to verify that the mathematical output from the IFT-spot model is consistent with the output from the BehavePlus5-SPOT module. Details concerning the output evaluation between BehavePlus-SPOT and IFT-spot can be found in PDF files included in the IFTDSS online help (under **IFTDSS Compared with Other Systems > Module Test Cases**). Future versions of IFTDSS are scheduled to expand the BehavePlus functionality.

Software Developer(s) Names, Organization, and Contact Information:

- BehavePlus was developed by U.S. Forest Service, Rocky Mountain Research Station, Fire, Fuel, and Smoke Science Program. Contact information is available on: http://www.firemodels.org/index.php/behaveplus-support/behaveplus-contact-us
- IFT-spot was developed by the IFTDSS Development Team based on software libraries provided by the BehavePlus developers. The IFTDSS Development Team may be contacted using the Feedback function available on every page of IFTDSS.

Science Model Contact, Names, Organization, and Contact Information:

- Contact information for implementation of the surface fire behavior models in the SURFACE module in BehavePlus or the underlying scientific algorithms is available on the following website: http://www.firemodels.org/index.php/behaveplus-support/behaveplus-contact-us
- For questions regarding IFT-spot, please contact the IFTDSS Team using the Feedback Function available on every page of IFTDSS.

Availability of the Version of Record: The latest version of the software code for IFT-spot resides with Sonoma Technology, Inc. (STI) and is being used in IFTDSS version 1.1. However, STI did not develop the scientific algorithms within the software code. The IFT-spot software model code is public domain and available from STI upon written request.

Primary Funding Sources:

- BehavePlus development and support has been funded by U.S. Forest Service, Rocky Mountain Research Station, Fire, Fuel, and Smoke Science Program; U.S. Forest Service, Fire and Aviation Management; the Joint Fire Science Program (JFSP).
- IFT-spot development was funded by JFSP.

Application Purpose (General): The IFT-spot model is used to calculate the maximum distance that one can expect potential spot fires to result from firebrands from torching trees, from a burning pile, or from a wind-driven surface fire. In order to run this model, fuel and vegetation characteristics, as well as weather, terrain, and fire information are needed. The IFT-spot module can be used to model spotting distance for Element 7 (Fire Behavior Prescription) of a burn plan, and can be used to facilitate in decision making for other Elements of a burn plan, such as Element 16 and 17 (Holding and Contingency Planning).

Application Purpose (Fuel Treatment): IFT-spot can be used for prescribed burn planning and to fill in specified elements of a burn plan.

User/Application Documentation:

- Documentation of BehavePlus operation and application: http://www.firemodels.org/index.php/national-systems/behaveplus

User Application Guidance:

- The IFTDSS online help includes a PDF tutorial that illustrates how to use IFTDSS to prepare a burn plan (*Preparing a Prescribed Burn Plan*).

Scientific Foundations of the Software Tool:

- Degree of validation/evaluation and availability of written results:
    - No information available at this time.
- Publications describing BehavePlus and the fire models on which it is based: http://www.firemodels.org/index.php/behaveplus-introduction/behaveplus-publications

Training Availability:

- Training on BehavePlus can be found at: http://www.firemodels.org/index.php/behaveplus-support/behaveplus-training